Q.P. Code:13996

80 Marks   **3 Hours**

Note: 1. Attempt any 4 Questions
         2. Figures to the right indicate marks
         3. Attempt sub questions in order

1. a) Explain the role of project manager in preparation of project feasibility report.   [06]

   b) The cost-duration data for various activities of a small construction project in   [14]
      Mumbai are given in the following table:

Activity code	Normal		Crash	
	Duration (weeks)	Cost (₹)	Duration (weeks)	Cost (₹)
1-2	10	40,000	6	70,000
1-3	8	50,000	5	65,000
1-4	7	45,000	4	57,000
2-5	6	30,000	4	42,000
2-6	9	72,000	6	90,000
3-5	9	36,000	5	50,000
4-5	5	50,000	4	72,000
4-7	10	30,000	5	52,500
5-6	5	35,000	5	35,000
5-7	8	88,000	6	1,00,000
6-7	6	36,000	3	53,000
6-8	6	18,000	4	27,000
7-8	3	15,000	2	13,000

   The indirect costs are ₹ 15,000/- per week
   Draw the network, find the normal project duration and the critical path. Also
   find the corresponding total project cost.
   Carry out stage by stage compression and find
      i.   The optimal duration and the corresponding minimum cost.
      ii.   All crash solution.
   Plot a graph of cost versus time

2. a) Explain Line of Balance technique with an example.   [05]
   b) What are the softwares available for construction project scheduling? Give the   [05]
      applications as well as merits and demerits of the same.
   c) List down the direct costs and indirect costs included on a construction project.   [05]
   d) Explain in detail safety measures and safety policies to be adopted in   [05]
      construction industry.

3. a) Discuss Web based project management.   [05]
   b) Write note on project feasibility report based on socio-techno-economic-   [08]
      environmental impact analysis.
   c) What type of effective training programme would you suggest for construction   [07]
      managers dealing with construction of docks and harbour projects?

[TURNOVER

4. a) Write short notes on: [12]
    i. String diagram.
    ii. Workmen Compensation Act.
    iii. Maslow's Need Hierarchy Theory

  b) Explain importance of incentives in enhancing workers performance in construction industry. [08]

5. a) Highlight work study applications in Civil Engineering [05]
  b) What do you mean by DPR? [05]
  c) Discuss the various form of organization. [05]
  d) What do you mean by PMC? Elaborate its role in construction of an airport [05]

6. a) Write a descriptive note on Mass haul diagrams. [05]
  b) Discuss Resource Leveling with an example. [05]
  c) The following data refers to time motion study of a dumper loader operation for earth moving activity: [10]

Obs No	Time reqd for adjustment (sec.)	Time reqd to excavate and fill bucket (sec.)	Time reqd for swing (sec.)	Time reqd for lifting, positioning (sec.)	Time reqd to fill the dumper (sec.)
1	35	41	25	13	122
2	25.5	38	20.5	14.5	116.5
3	22.5	41	19.5	18.5	135
4	22	33.5	18	16	114.5
5	18	32	19.5	24.5	132
6	17	34	21	19	146.5

Based on statistical analysis, determine which sub-activity is most efficiently performed and which is least consistently performed. Comment on what may be the possible reasons for the poor performance of the sub-activity

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